

# Union Pacific Railroad

## *System Overview and Intermodal Operations*



**November 06, 2013 – AAPA Conference**

*G. Bisailon – General Director Intermodal Operations*



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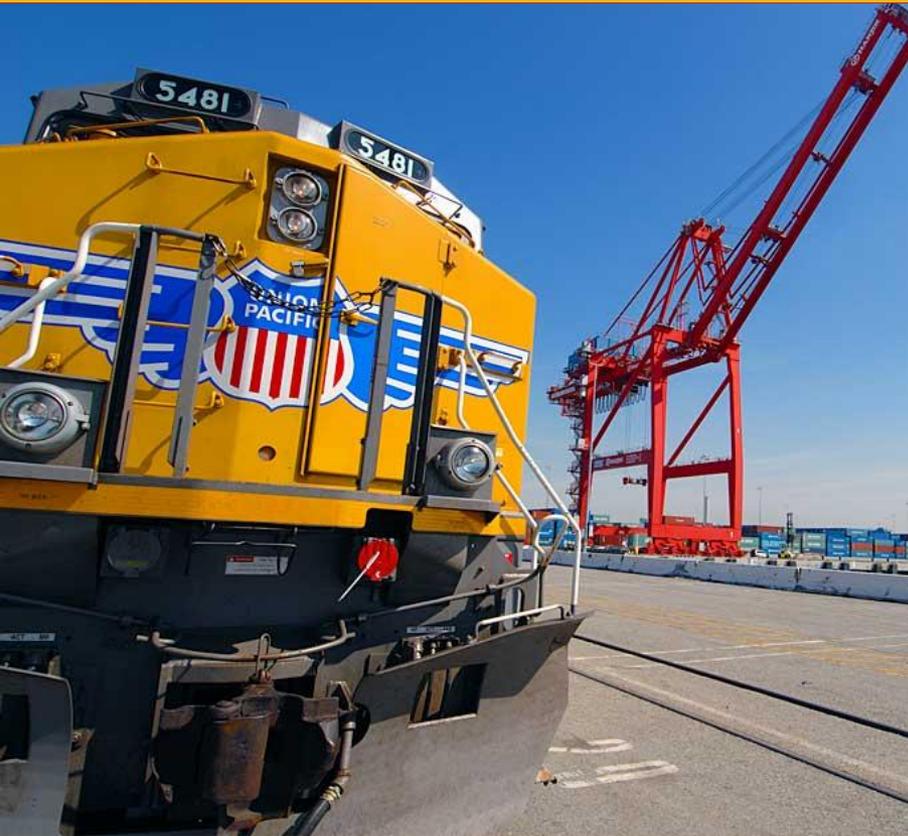
# Agenda

- **US Intermodal System Overview**
- **UP Intermodal Operations**
- **The Port Connection**
- **Industry Challenges**
  - Regulatory
  - Chassis
  - Weights
  - Communication
- **Emerging Technology**
  - Wide Span Gantry at Inland Terminals
  - AGS
  - Scales



# Union Pacific Railroad

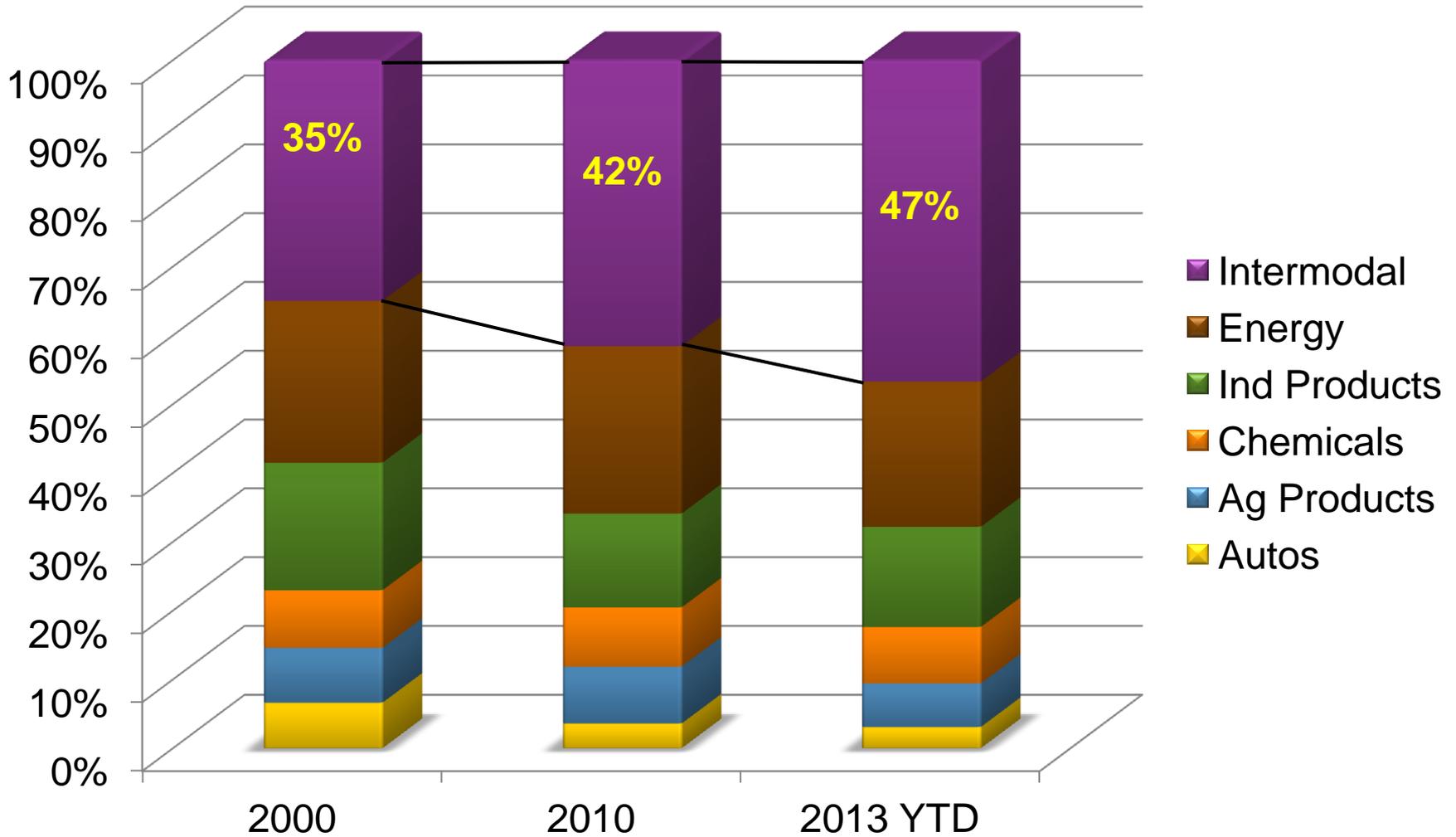
## US Intermodal Overview & UP's Intermodal Operations



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# Intermodal Comprises 47% of 2013 US Class 1 Rail Volume

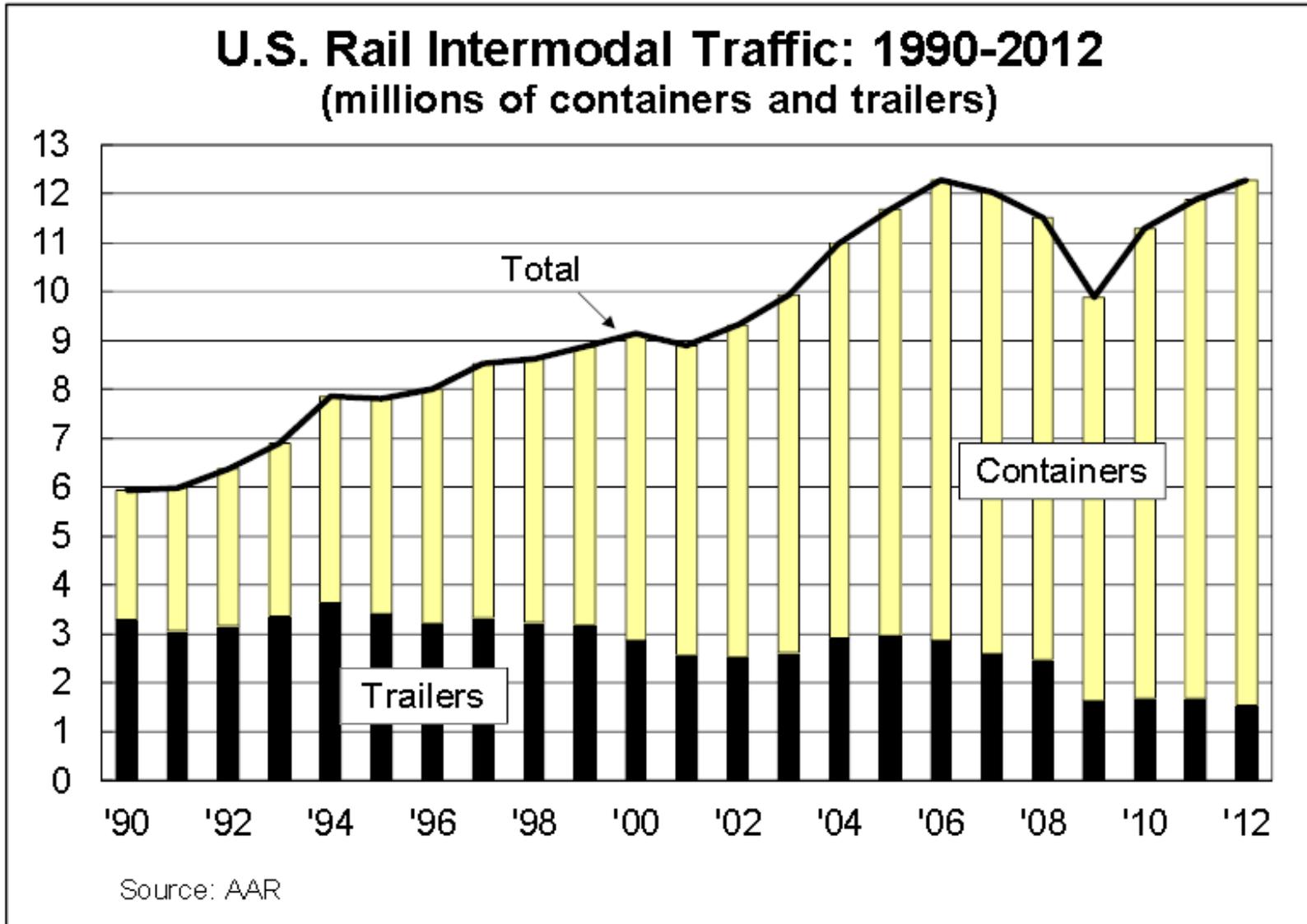


Source: AAR CS54 (UP, NS, CSX, BNSF, KCS)



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# Intermodal Traffic Breakdown



# Union Pacific's Intermodal Network

## Legend

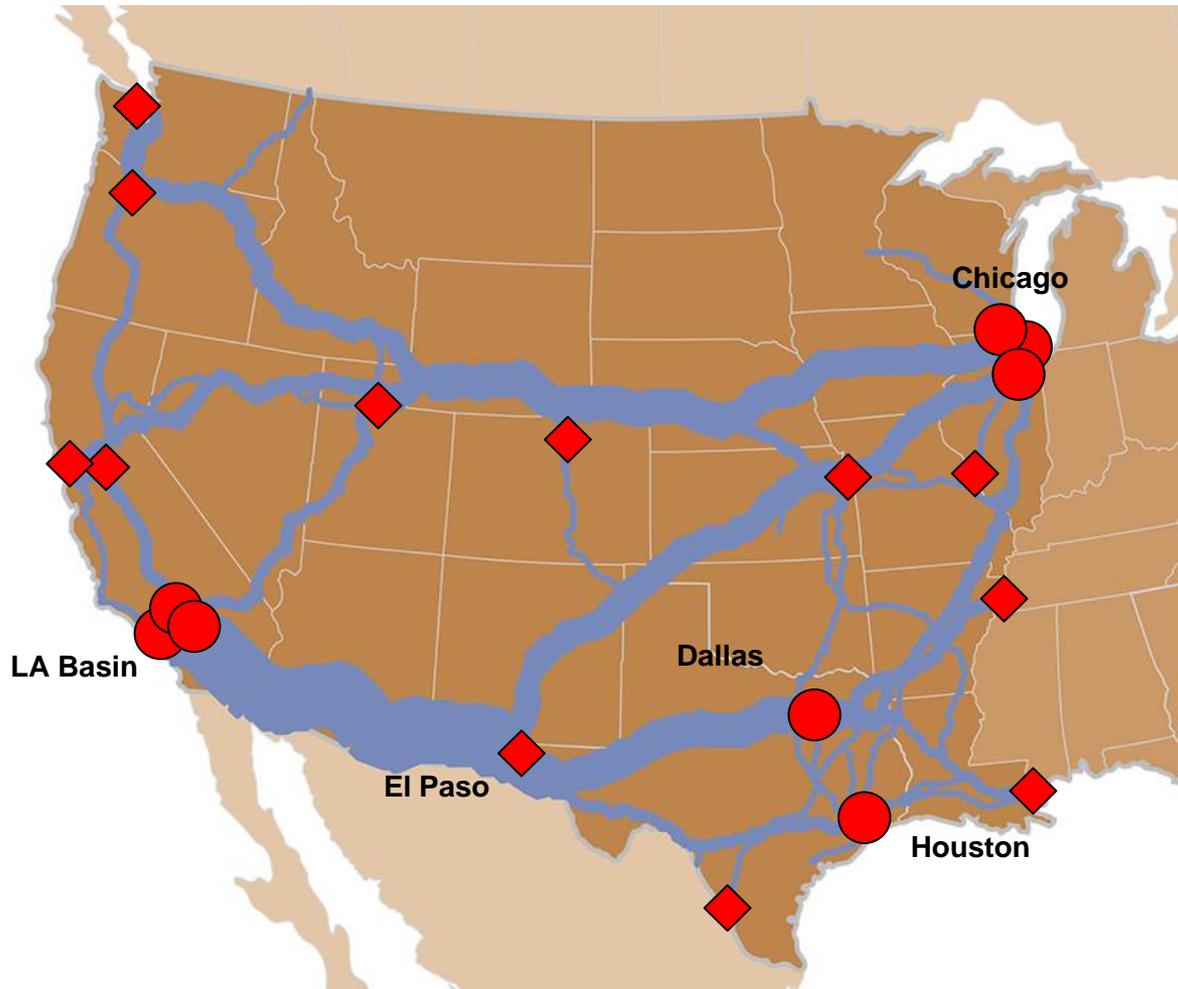
- Intermodal Ramp
- Suspended Operations
- Steel wheel Interchange
- ▲ On Dock Locations
- + Paper Ramp



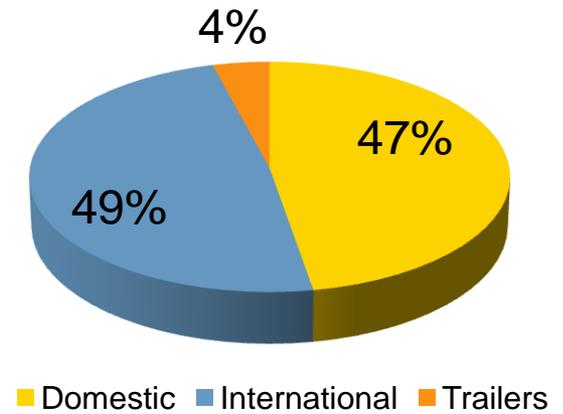
**2012 Fast Facts – Intermodal**

- 34 Ramps – 14 States**
- 5.3 mil annual lifts**
- 28,835 trains annually**
- 11,600 Cars daily**
- Ownership :**
- 54,285 Containers**
- 38,233 Chassis**
- 250 RTG's/Packers**
- \$1.1 bil Capex New/Expanded Terminals past 10 years!**

# Intermodal Franchise 2013 YTD- Actual



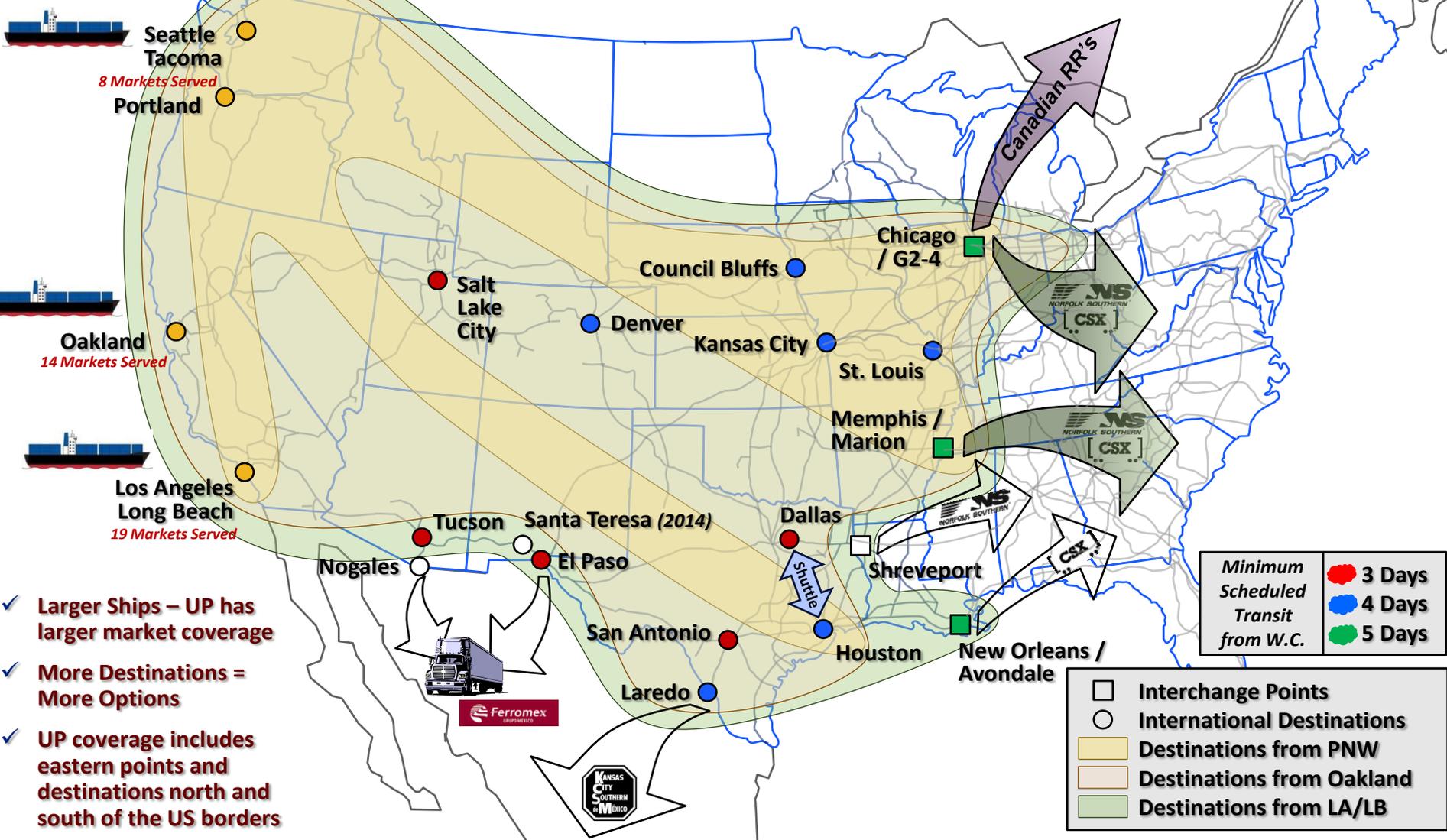
### Unit Mix



■ Domestic ■ International ■ Trailers

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## International Intermodal Market Coverage



- ✓ Larger Ships – UP has larger market coverage
- ✓ More Destinations = More Options
- ✓ UP coverage includes eastern points and destinations north and south of the US borders

Minimum Scheduled Transit from W.C.	<span style="color: red;">●</span> 3 Days
	<span style="color: blue;">●</span> 4 Days
	<span style="color: green;">●</span> 5 Days

<span style="border: 1px solid black; display: inline-block; width: 15px; height: 15px;"></span>	Interchange Points
<span style="border: 1px solid black; border-radius: 50%; display: inline-block; width: 15px; height: 15px;"></span>	International Destinations
<span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 15px;"></span>	Destinations from PNW
<span style="background-color: orange; border: 1px solid black; display: inline-block; width: 15px; height: 15px;"></span>	Destinations from Oakland
<span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 15px; height: 15px;"></span>	Destinations from LA/LB

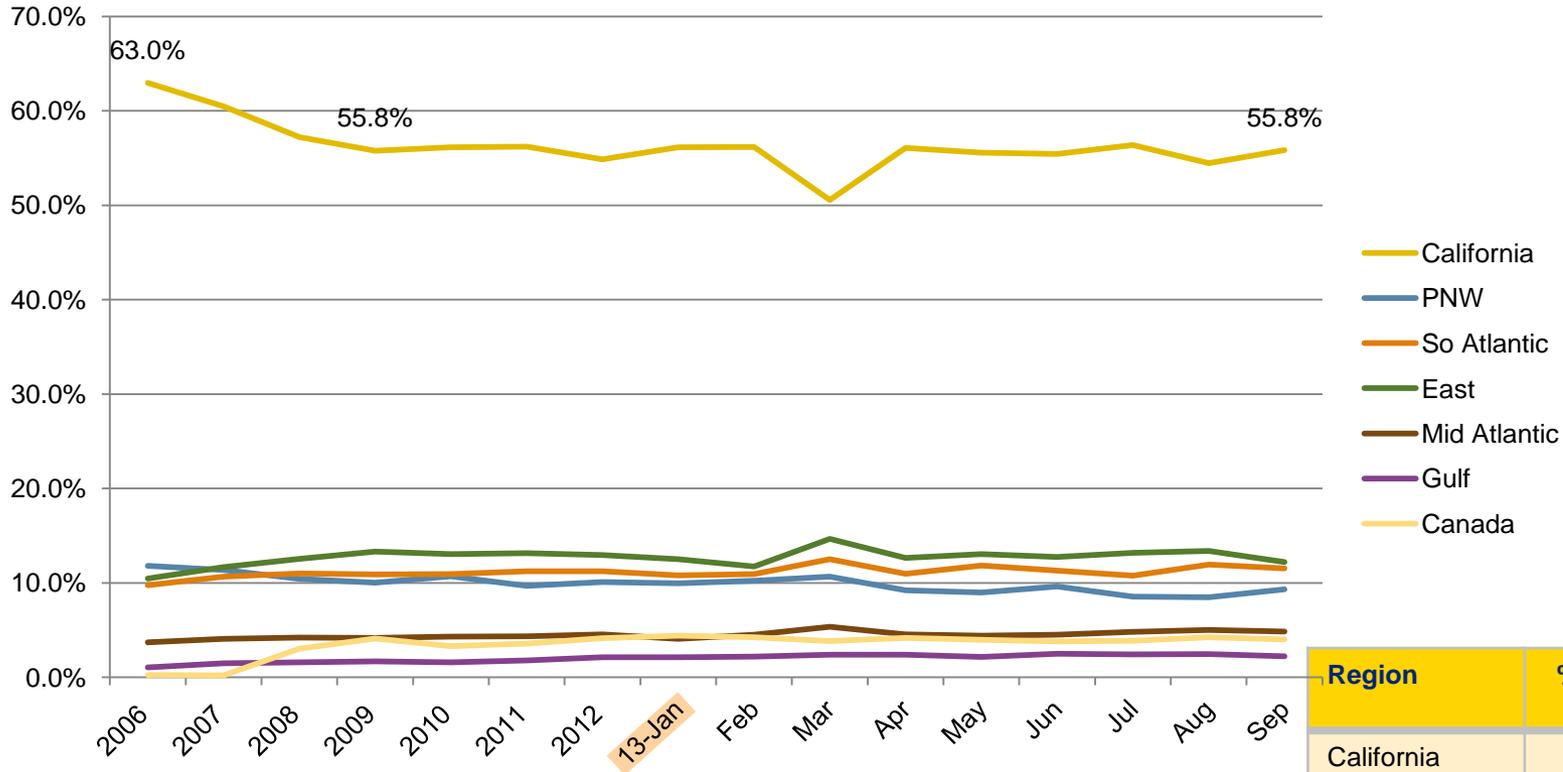
# Union Pacific Railroad

## The Port Connection



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## Coastal Share Percentage - Total Asian Imports (TEUs)



- **California Ports still primary for Asian imports/exports**
  - Stable share since 2009
  - Union Pacific well positioned to handle growth and large volumes off the larger vessels
- **North East Coast Ports share stable**
- **Some growth via South Atlantic Ports**
- **British Columbia Ports have gained some share**

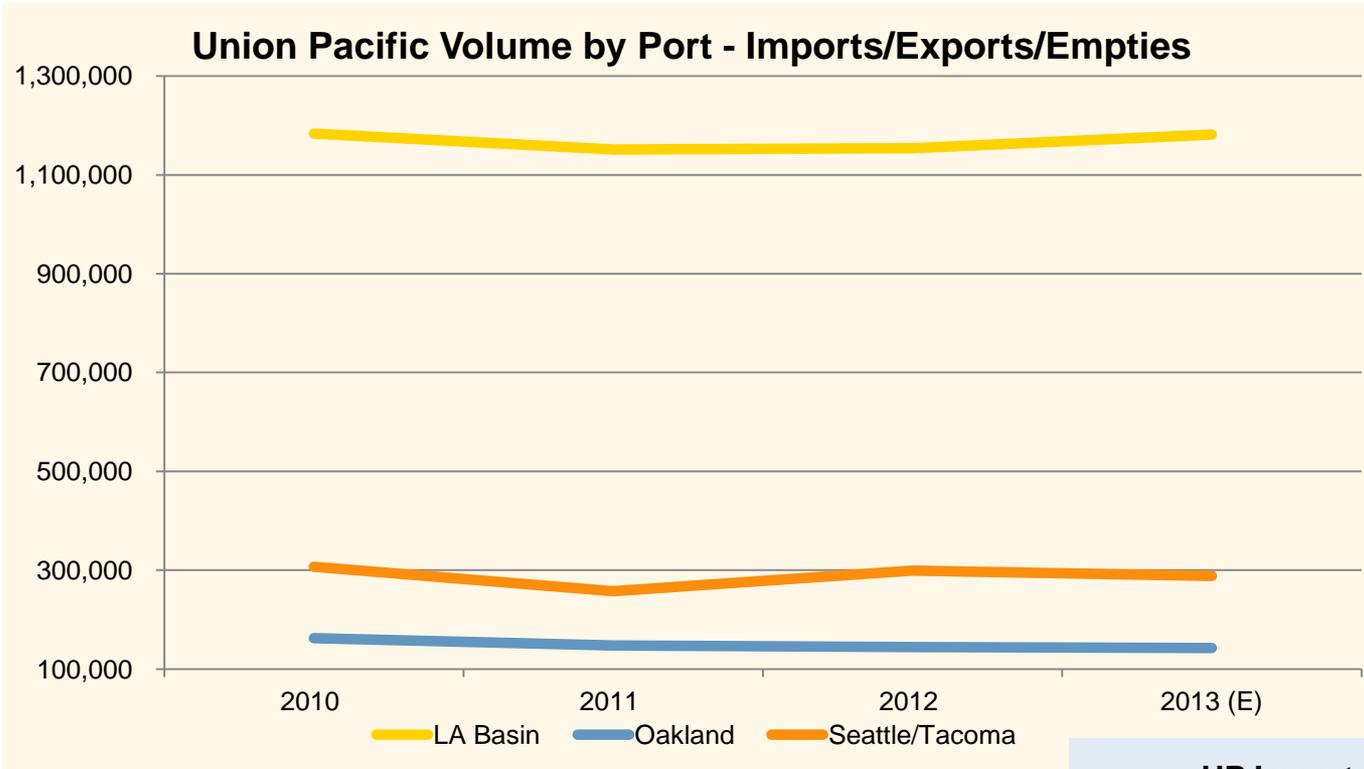
Region	% Share 2012	% Share YTD Sept '13
California	55.3%	55.3%
No. East	13.0%	12.9%
Mid- Atlantic	4.6%	4.7%
So. Atlantic	11.3%	11.4%
Gulf	2.1%	2.3%
PNW	10.2%	9.4%
Canada	3.4%	4.1%

■ ■ % Change >+/- 1%



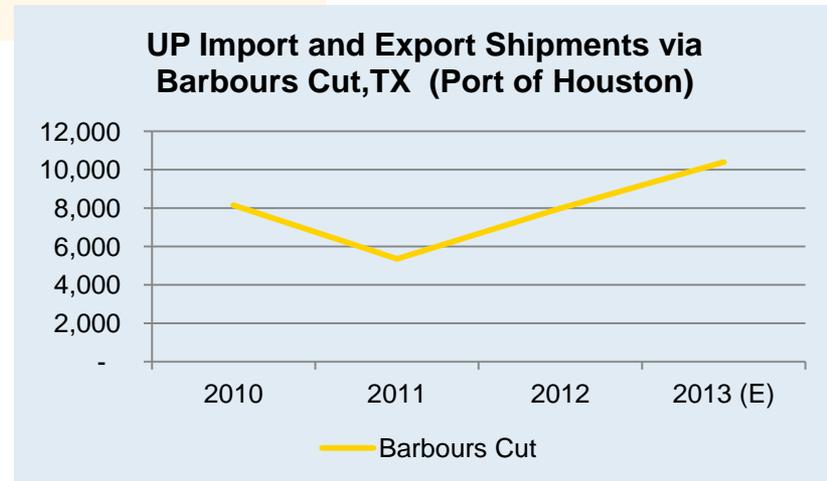
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# Union Pacific Volumes by Port/Port Region



- **UP volume in line with overall import trends**

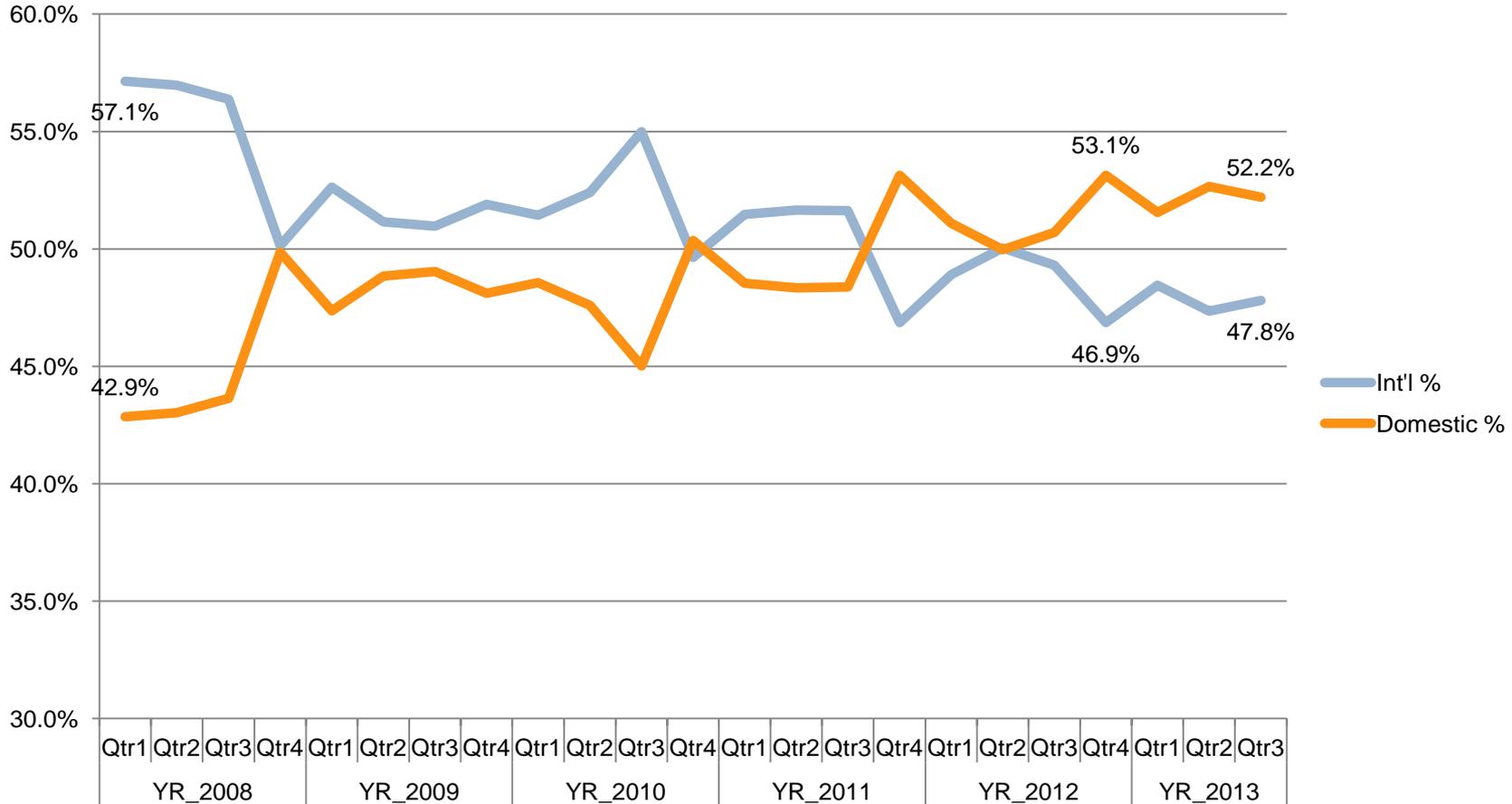
**Note: Other Western Ports served by UP have volume less than 50,000 units annually**



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# Growth in Transloading

Estimated Western Rail Carrier IPI moves vs. Domestic moves  
% of Total USWC imports



- Slow steady growth of transloading from ISO boxes to domestic 53' boxes driven by BCO overall supply chain strategies



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## Intermodal Industry Challenges



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# The Growth Challenge

- Intermodal volumes expected to continue strong growth
- Investing in:
  - Terminal Infrastructure
  - Line of Road
  - Technology
  - Locomotives
  - People



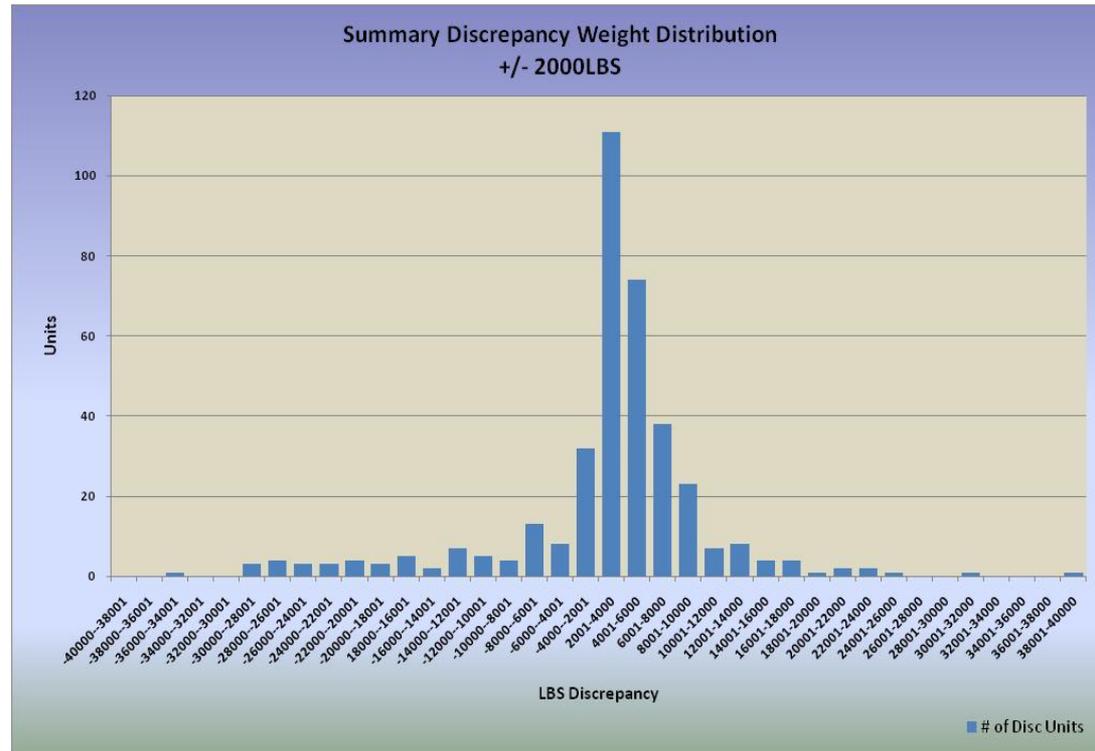
# The Chassis Puzzle

- **Changing chassis model in N. America**
  - Steamship line
  - Chassis pools
  - Trucker model
- **Terminal design dependancies**
  - Wheeled
  - Grounded



# The Weight Challenge

- Industry wide issue
- Pilot Study
  - 1166 containers
  - 1 in 3 off by 2000# or more
- Importance of accurate weights
  - Ship stowage
  - Train load planning
  - Terminal handling
  - Train performance



# The Regulatory Challenge



- **PTC**
  - **Unfunded Federal mandate**
- **FMCSR**
  - **49CFR SS.385, 386, 390**
- **CARB**
  - **Facility Operators**
- **Local Jurisdictions**
  - **Influences by Cities**



# Union Pacific Railroad

## Emerging Technologies



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# Intermodal Technology

**MIV**

## Mobile Inventory Vehicle

- Real time inventory updates
- OCR technology
- GPS mapping
- Image Viewing capable
- Reduced inventory time
- Data analytics for root cause of misplacements



CAS™ MIV™ OCR Data for UP-JIT-7 / RowE / Trial01 on Mar 04, 2011

Parking Spot	Parking Spot Audit	Corrected Number	Original Number	OCR Confidence	Sequence Number	Capture Time	Audit By	Audit Time
E0675	E	PAHZ808851	PAHZ808851	50	0002000566233	Mar 4 2011 12:12PM	No Audit	No Audit

Audit:

PAHZ    Audit    Confirm Key: +    Empty Key: /    Unreadable Key: \*    Split Key: -

Clear Key: Del    Incomplete    Blurry/Blocked    Bad Zoom Level    No Image    Trailer    Unknown Issue



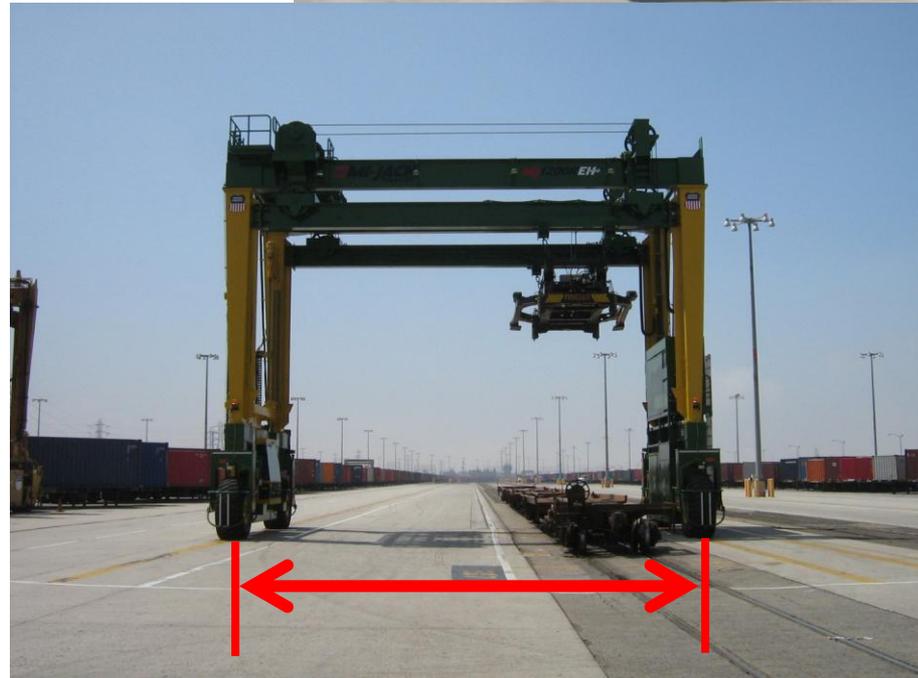
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# Intermodal Technology

## GPS Cranes

### GPS Cranes

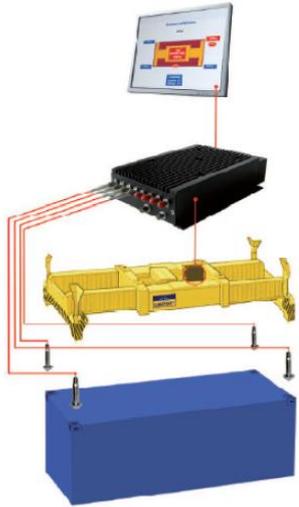
- Autosteering
  - Improved productivity
  - Improved safety



# Intermodal Technology

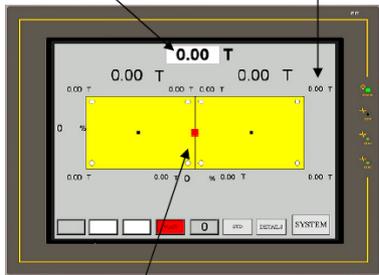
## Crane Scales

- Crane Scale Technology



Total container weight

Weight on each twistlock



Centre of gravity point of the two containers.



### Output data of LASSTEC system:

- Date and time
- Container sizes
- Each twistlock weight
- Container weight 1,2 and total
- Eccentricities in x - axis
- Eccentricities in y - axis
- Each twistlock peak load
- Total peak load



# Intermodal Technology

## *Other Initiatives*

- Drag Reduction / Fuel Conservation
  - Aerodynamics
  - Wheel-Rail
- Automated Flip Station
- Movement optimization
- Terminal Automation



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# Thank You!



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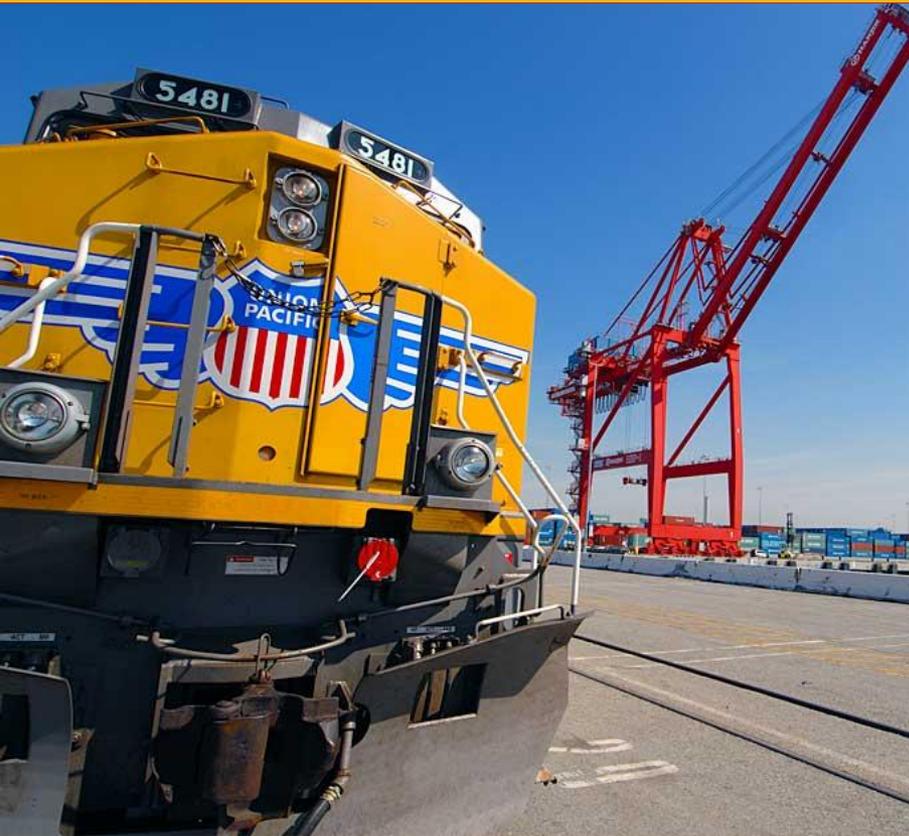
# Union Pacific Railroad 2013 AAPA Conference Vancouver, BC

150 YEARS



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# Backup Slides



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# Santa Teresa, NM



# Picture of RTG Operations



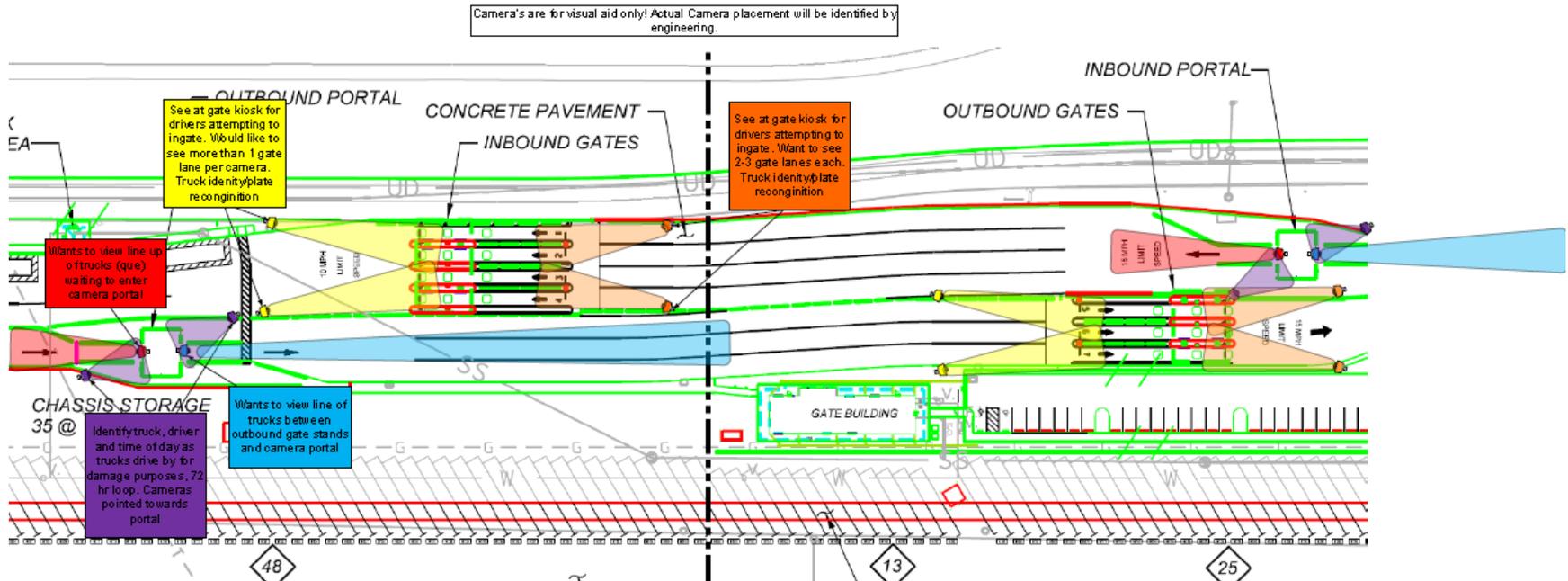
# Santa Teresa Intermodal Terminal

## Enhanced Technology

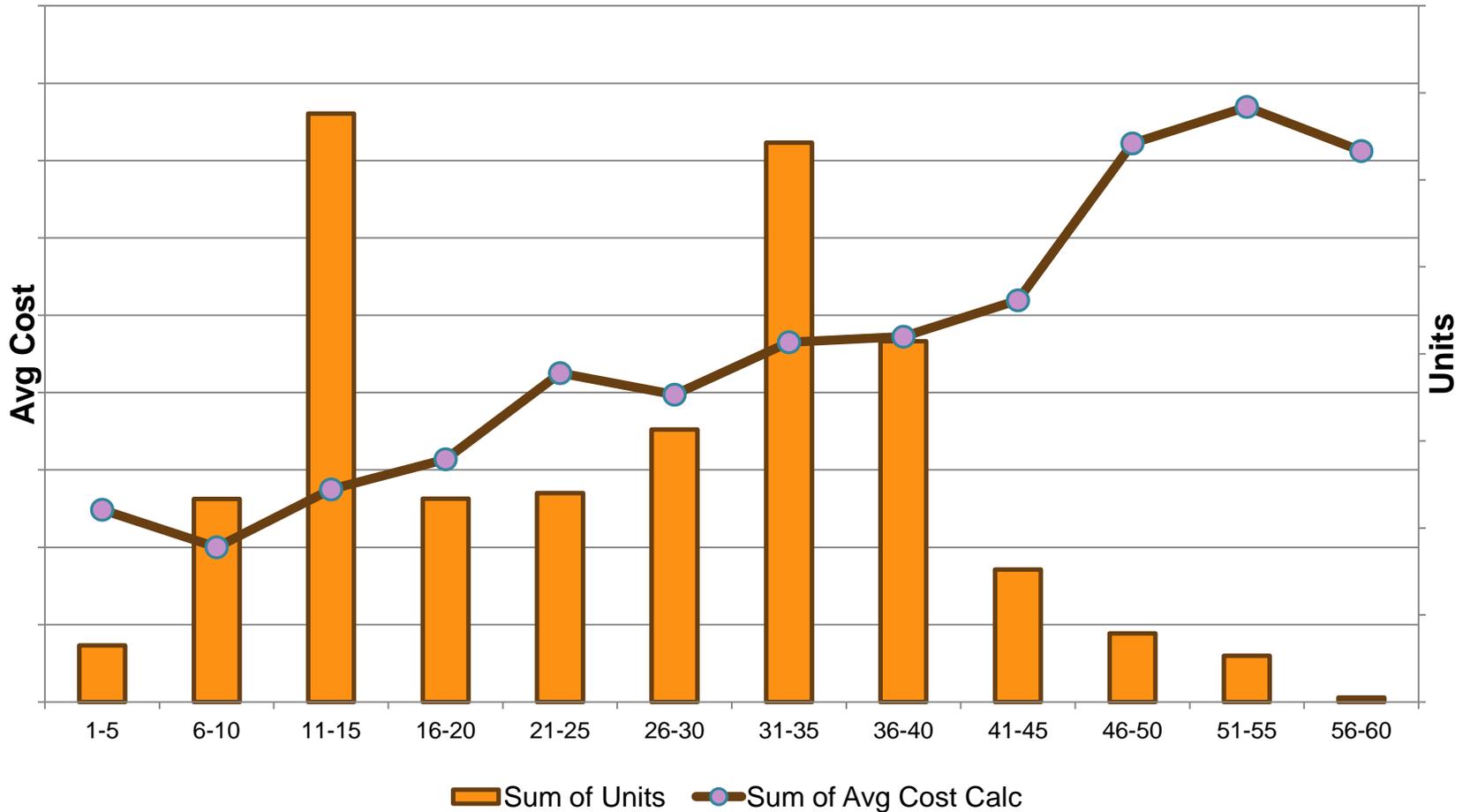
### Camera Surveillance

- Enhanced security
- Video recording for playback purposes

- Gate activity monitoring
- Incident investigation



# The Weight Challenge



- **Weight is a significant part of the cost component**
- **Ability to double stack is major cost consideration**
- **Over one half of UP ISO box shipments weigh over 25 tons**

